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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/665,179

09/19/2000

Dusko Pavlovic

4483

4824

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7590

10/13/2004

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EXAMINER

PHAM, THOMAS K

ART UNIT

PAPER NUMBER

2121

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/665,179

Applicant(s)

PAVLOVIC ET AL.

Examiner

Thomas K Pham

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

1. This action is in response to request for re-consideration filed on 7/14/2004.
2. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

**Quotations of U.S. Code Title 35**

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim Rejections - 35 USC § 103**

7. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over “Specware 2.0.3 User Manual” March 1998 (“Specware”) in view of “Colimits in Memory: Category Theory and Neural Systems”, International Joint Conference on Neural Networks, Volume 1, July 1999 pages 492-496 (“Healy”).

**Regarding claims 1 and 12**

Specware teaches a computer-implemented method of automated software specification comprising: storing specification modules, with their relations displayed on a computer screen in terms of their specification morphisms, where the specification morphisms translate the specification signatures while preserving the logical structure of the specification (page 4-4 Accessing the Specware Library, “SPECWARE includes a library ... defining your own”); determining and displaying, in response to a user command, multiple specification diagrams, each of which captures the relation between two or more specification modules, along with its specification morphisms (page 1-5 Building a Specification, “You must build a specification ... adding more structural detail”); building and displaying, in response to a user command, a diagram of the specification diagrams, the diagram of specification diagrams retaining the diagram morphisms of the specification diagrams (page 5-6 Specification Diagrams, “A specification diagram, also known as ... operations on existing diagrams”). Specware does not teach computing the colimits of the hereditary diagram of diagrams to compose large software modules while preserving the decomposition of the involved components. However, Healy teaches the derivation of the colimits of diagrams upon diagrams, through re-use and work together to build a large structure (fig. 3; also see page 494 “Putting everything together”) for the

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purpose of composing a system of interrelationships among objects through such structures leads to a new object. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the colimits of Healy with the concept of Specware because it would provide for the purpose of composing a system of interrelationships among objects through such structures leads to a new object.

### **Regarding claim 2**

Specware teaches a computer-implemented method for determining a colimit of a hereditary diagram, comprising: extracting the shape colimit of the hereditary diagram stored in a memory, the hereditary diagram including a plurality of diagrams, bringing each of the plurality of diagrams in the hereditary diagram to the shape of the shape colimit to yield a plurality of extended diagrams in the memory, and taking the colimit of the extended diagrams (pages 5-14 to 5-16 Creating Shared Unions, “The most powerful tool for ... A cocone diagram is displayed, as shown in Figure 5-7”).

### **Regarding claim 3**

Specware teaches receiving from the user an indication to find the colimit of the hereditary diagram (page 5-15 “How to: Create a Shared Union ...”).

### **Regarding claim 4**

Specware teaches wherein extracting the shape colimit of the hereditary diagram includes: determining the shape of each of the plurality of diagrams to yield a shape graph in the memory (page 3-5, “The defining diagram ... in the shared union”); and automatically calculating a colimit of the shape diagram (page 3-4, “SPECWARE automatically creates ... to the colimit”).

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**Regarding claim 5**

Specware teaches displaying a representation of the colimit on a display device (page 3-4, “The shared union can be ... the cocone morphisms”).

**Regarding claim 6**

Specware teaches the representation of the colimit is the name of the colimit (page 3-5, “SPECWARE generates unambiguous names ... postfixes a number”).

**Regarding claim 7**

Specware teaches the representation of the colimit is a picture of the diagram of the colimit (page 5-16, Figure 5-7).

**Regarding claim 8**

Specware teaches the hereditary diagram includes types of the diagram elements (page 2-19, “A specification diagram ... their identifying labels”).

**Regarding claim 9**

Specware teaches the hereditary diagram includes morphisms between the diagram elements (page 3-11, Figure 3-7).

**Regarding claim 10**

Specware teaches the hereditary diagram is displayed with indicators on its arcs indicating what morphism is associated with the arcs (page 2-20, Table 2-3).

**Regarding claim 11**

Specware teaches the colimit of the hereditary diagram is displayed with indicators on its arcs indicating that arcs constitute a cocone colimit (page 3-5, Figure 3-1).

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (703) 305-7587 or the new number (571) 272-3689 beginning Oct. 13<sup>th</sup>, 2004, Monday - Friday from 8:00 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (703) 308-3179 (or (571) 272-3687 starting Oct. 13<sup>th</sup>, 2004).

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**. Responses may also be faxed to the **official fax number (703) 872- 9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Thomas Pham**  
*Patent Examiner*

TP

October 6, 2004

  
**Anthony Knight**  
Supervisory Patent Examiner  
Group 3600